



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,208	11/28/2001	Arvind Krishnamurthy	25961-710	3764

21971 7590 05/26/2004

WILSON SONSINI GOODRICH & ROSATI  
650 PAGE MILL ROAD  
PALO ALTO, CA 943041050

EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT	PAPER NUMBER
----------	--------------

2171

DATE MAILED: 05/26/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

fr

# Office Action Summary

Application No.

09/997,208

Applicant(s)

KRISHNAMURTHY ET AL.

Examiner

Etienne P LeRoux

Art Unit

2171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6</u> .   | 6) <input type="checkbox"/> Other: ____.                                    |

***Claim Objections***

Claim 2 is objected to because of the following informalities: There is insufficient antecedent basis for "the repetitions are subtrees of at least the first tree." Appropriate correction is required. The following is suggested: the second tree is a repetition of the first tree.

Claim 6 is objected to because the limitation "one or more deletions of subtrees" is duplicated. Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-61 of the claimed invention are rejected under 35 U.S.C. 101 because they are directed to non-statutory subject matter.

MPEP § 2106 states:

There is always some form of physical transformation within a computer because a computer acts on signals and transforms them during its operation and changes the state of its components during the execution of a process. Even though such a physical transformation occurs within a computer, such activity is not determinative of whether the process is statutory because such transformation alone does not distinguish a statutory computer process from a nonstatutory computer process. What is determinative is not how the computer performs the process, but what the computer does to achieve a practical application. See *Arrhythmia*, 958 F.2d at 1057, 22 USPQ2d at 1036.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2171

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7-9, 19-21, 24, 26-28, 30, 36, 38-40, 54 and 56-63 are rejected under 35

U.S.C. 102(e) as being anticipated by US Pat No 6,219,833 issued to Solomon et al (hereafter Solomon).

Claims 1, 24, 26, 30, 56 and 59-63:

Solomon discloses:

- accessing at least a first set of data of a first tree [Fig 4a, 151], wherein the first set of data includes selected data of the first tree, the selected data at least partly specifying tree data;
- accessing at least a second set of data of a second tree [Fig 4b, 152];
- determining an edit sequence between at least part of the first set of data and at least part of the second set of data, the edit sequence including any of insertions, deletions, substitutions, matches, and repetitions [Fig 4a]; and
- finding corresponding data of the second set of data, the corresponding data having a correspondence to the selected data, the correspondence at least partly found by determining the edit sequence [Fig 4a, col 8, lines 50 through col 9, line 54].

Claim 2:

Solomon discloses wherein the repetitions are subtrees of at least the first tree [Fig 4a, 152].

Claim 3:

Art Unit: 2171

Solomon discloses wherein the edit sequence includes at least two repetitions, the at least two repetitions based on at least one subtree of the first tree, and the at least two repetitions appears in the second tree. and the at least two repetitions include at least a first repetition and a second repetition, and the first repetition has at least one difference from the second repetition [Fig 4a]

Claim 4:

Solomon discloses wherein each of the at least two repetitions is obtainable from the at least one subtree of the first tree by some sequence of one or more insertions, deletions, substitutions and matches [Fig 4a].

Claims 5 and 36:

Solomon discloses wherein the edit sequence includes none of insertions, deletions, substitutions, matches, and repetitions [col 8, lines 50-60].

Claims 7 and 38:

Solomon discloses wherein the edit sequence is at least partly determined by calculating a total cost, and each of one or more of insertions, deletions, substitutions, and matches is associated with one or more costs [col 3, lines 9-35].

Claims 8 and 39:

Solomon discloses wherein the one or more costs are at least partly set to encourage the edit sequence to include one or more matches between at least some selected data of the first tree and at least some data from the second tree [col 9, lines 18-35].

Claims 9 and 40:

Solomon discloses wherein the one or more costs are at least partly set to encourage the edit sequence to include one or more repetitions [col 9, lines 18-35].

Claims 19:

Solomon discloses wherein tree data is at least partly from the first tree [Fig 3, 12].

Claim 20:

Solomon discloses wherein tree data is at least partly from the second tree [Fig 4a].

Claim 21:

Solomon discloses wherein the second tree is received if the second tree is different from the first tree [Figs 4a, 4b].

Claims 27 and 57:

Solomon discloses wherein the first tree and the second tree represent a same tree [Figs 3, 4a and 4b]

Claims 28 and 58:

Solomon discloses wherein the first tree and the second tree represent different versions of the same tree [Figs 3, 4a and 4b].

Claim 54:

Solomon discloses wherein one or more of the first set of data and the second set of data is represented at least partly by a tree [Figs 4a, 4b]

Claim 61:

Solomon discloses wherein the second tree is received if the second tree is different from the first tree [Figs 4a, 4b].

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 10-18, 22, 23, 29, 31-35, 37, 41-49 and 50-53 are rejected under 35

U.S.C. 103(a) as being unpatentable over Solomon in view of Cormen et al: Introduction to Algorithms, Second Edition.<sup>1</sup>

Claims 6 and 37:

Solomon discloses the elements of claims 1 and 30-32 as noted above.

Solomon fails to disclose wherein the edit sequence includes at least one of one or more insertions of nodes, one or more insertions of subtrees, one or more deletions of subtrees, one or more deletions of subtrees, one or more substitutions of nodes, one or more substitutions of subtrees, one or more repetitions of nodes, and one or more repetitions of subtrees.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the edit sequence includes at least one of one or more insertions of nodes, one or more insertions of subtrees, one or more deletions of subtrees, one or more deletions of subtrees, one or more substitutions of nodes, one or more

---

<sup>1</sup> Section 14.2. How to augment a data structure, page 308. This chapter also appears in the first edition, dated 1991.

Art Unit: 2171

substitutions of subtrees, one or more repetitions of nodes, and one or more repetitions of subtrees as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 10 and 41:

Solomon discloses the elements of claims 1, 7, 30 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with a first match at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second match at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with a first match at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second match at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].



Art Unit: 2171

Claims 11 and 42:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with a first insertion at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second insertion at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with a first insertion at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second insertion at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 12 and 43:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with a first deletion at a first distance from a root of a tree representation of some set of data. a second cost is associated with

Art Unit: 2171

a second deletion at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with a first deletion at a first distance from a root of a tree representation of some set of data. a second cost is associated with a second deletion at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 13 and 44:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with a first substitution at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second substitution at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with a first substitution at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second substitution at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 14 and 45:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with a first repetition at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second repetition at a second distance from a root of a tree representation of some set of data, the first distance is less than the second distance, and the first cost and the second cost are different.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with a first repetition at a first distance from a root of a tree representation of some set of data, a second cost is associated with a second repetition at a second distance from a root of a tree representation of

Art Unit: 2171

some set of data, the first distance is less than the second distance, and the first cost and the second cost are different as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 15 and 46:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with a first text-based content substitution such that a first length of substituting text-based content is substantially equal to a first length of substituted text-based content, a second cost is associated with a second text-based content substitution such that a second length of substituting text-based content is substantially different from a second length of substituted text-based content, and the first cost and the second cost are set to discourage the second text-based content substitution more than the first text-based content substitution.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with a first text-based content substitution such that a first length of substituting text-based content is substantially equal to a first length of substituted text-based content, a second cost is associated with a second text-based content substitution such that a second length of substituting text-based content is substantially different from a second length of substituted text-based content, and the first cost

Art Unit: 2171

and the second cost are set to discourage the second text-based content substitution more than the first text-based content substitution as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 16 and 47:

Solomon discloses the elements of claims 1, 17, 30-32 and 38 as noted above.

Solomon fails to disclose wherein data includes at least a first type and a second type, and the one or more costs are at least partly set to discourage substitutions of one or more of the first type for one or more of the second type.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein data includes at least a first type and a second type, and the one or more costs are at least partly set to discourage substitutions of one or more of the first type for one or more of the second type as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 17 and 48:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein data includes at least a first type and a second type, and the one or more costs are at least partly set to discourage substitutions of one or more of the second type for one or more of the first type.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein data includes at least a first type and a second type, and the one or more costs are at least partly set to discourage substitutions of one or more of the second type for one or more of the first type as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 18 and 49:

Solomon discloses the elements of claims 1, 7, 30-32 and 38 as noted above.

Solomon fails to disclose wherein a first cost is associated with preserving data of a first type with unchanged attributes, a second cost is associated with preserving data of a second type with one or more changed attributes, and the first cost and the second cost are set to discourage preserving data of the second type more than preserving the data of the first type.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein a first cost is associated with preserving data of

Art Unit: 2171

a first type with unchanged attributes, a second cost is associated with preserving data of a second type with one or more changed attributes, and the first cost and the second cost are set to discourage preserving data of the second type more than preserving the data of the first type.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 22:

Solomon discloses the elements of claims 1 and 7 as noted above.

Solomon fails to disclose if two or more corresponding data are found, then: selecting larger selected data, at least part of the larger selected data including a larger subtree in a first tree representation of the first set of data, the larger subtree including the selected data; determining a second edit sequence between at least part of the first set of data and at least part of a second tree representation of the second set of data, the first set of data including at least part of the larger selected data, the second edit sequence including any of insertions, deletions, and substitutions; finding corresponding data of the second set of data, the corresponding data having a correspondence to the larger selected data, the correspondence at least partly found by determining the second edit sequence; and finding corresponding data of the second set of data, the corresponding data having a correspondence to the selected data, the correspondence at least partly found by determining the second edit sequence.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

Art Unit: 2171

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include if two or more corresponding data are found, then: selecting larger selected data, at least part of the larger selected data including a larger subtree in a first tree representation of the first set of data, the larger subtree including the selected data; determining a second edit sequence between at least part of the first set of data and at least part of a second tree representation of the second set of data, the first set of data including at least part of the larger selected data, the second edit sequence including any of insertions, deletions, and substitutions; finding corresponding data of the second set of data, the corresponding data having a correspondence to the larger selected data, the correspondence at least partly found by determining the second edit sequence; and finding corresponding data of the second set of data, the corresponding data having a correspondence to the selected data, the correspondence at least partly found by determining the second edit sequence as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 23:

Solomon discloses the elements of claims 1 and 7 as noted above.

Solomon fails to disclose wherein the correspondence is at least partly found by one or more of: determining the edit sequence, at least part of at least one of a first plurality of paths from a root of a tree representation of the first set of data to selected data of the tree representation of the first set of data, at least part of at least one of a second plurality of paths from a root of a tree representation of the second set of data to corresponding data of the tree



Art Unit: 2171

representation of the second set of data, and one or more edit sequences between at least one of the first plurality of paths and at least one of the second plurality of paths.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the correspondence is at least partly found by one or more of: determining the edit sequence, at least part of at least one of a first plurality of paths from a root of a tree representation of the first set of data to selected data of the tree representation of the first set of data, at least part of at least one of a second plurality of paths from a root of a tree representation of the second set of data to corresponding data of the tree representation of the second set of data, and one or more edit sequences between at least one of the first plurality of paths and at least one of the second plurality of paths as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 29:

Solomon discloses the elements of claim 1 as noted above.

Solomon fails to disclose determining at least one edit sequence of forward and backward edit sequences between at least part of the first tree and at least part of the second tree; performing at least one of 1) and 2): 1 a) pruning a relevant subtree from at least part of the first tree, the relevant subtree at least partly determined from the forward and backward edit sequences; 1 b) determining a pruned edit sequence between the pruned relevant subtree and at

Art Unit: 2171

least part of the second tree; 2a) pruning a relevant subtree from at least part of the second tree. the relevant subtree at least partly determined from the forward and backward edit 9 sequences; 2b) determining a pruned edit sequence between at least part of the first tree and the pruned relevant subtree: and finding corresponding data of the second set of data, the corresponding data having a correspondence to the selected data, the correspondence at least partly found by determining the pruned edit sequence.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include determining at least one edit sequence of forward and backward edit sequences between at least part of the first tree and at least part of the second tree; performing at least one of 1) and 2): 1 a) pruning a relevant subtree from at least part of the first tree, the relevant subtree at least partly determined from the forward and backward edit sequences; 1 b) determining a pruned edit sequence between the pruned relevant subtree and at least part of the second tree; 2a) pruning a relevant subtree from at least part of the second tree. the relevant subtree at least partly determined from the forward and backward edit 9 sequences; 2b) determining a pruned edit sequence between at least part of the first tree and the pruned relevant subtree: and finding corresponding data of the second set of data, the corresponding data having a correspondence to the selected data, the correspondence at least partly found by determining the pruned edit sequence.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 31:

Solomon discloses the elements of claim 30 as noted above.

Solomon fails to disclose wherein the second path is determined at least in part by: traversing the first tree and the second tree; at each traversed level of the first tree, the traversed level of the first tree including a plurality of level nodes, selecting a level node of the plurality of level nodes, the level node being in the first path: at each traversed level of the second tree, selecting a best corresponding node at the traversed level of the second tree, the best corresponding node saving a best correspondence to the selected level node of the plurality of level nodes.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the second path is determined at least in part by: traversing the first tree and the second tree; at each traversed level of the first tree, the traversed level of the first tree including a plurality of level nodes, selecting a level node of the plurality of level nodes, the level node being in the first path: at each traversed level of the second tree, selecting a best corresponding node at the traversed level of the second tree, the best corresponding node saving a best correspondence to the selected level node of the plurality of level nodes as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 32:

Solomon discloses the elements of claims 30 and 31 as noted above.

Solomon fails to disclose wherein the best corresponding node is determined at least in part by determining an edit sequence between a first subset of data obtained from at least part of the first set of data and a second subset of data obtained from at least part of the second set of data, the edit sequence including any of insertions, deletions, substitutions, matches, and repetitions.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the best corresponding node is determined at least in part by determining an edit sequence between a first subset of data obtained from at least part of the first set of data and a second subset of data obtained from at least part of the second set of data, the edit sequence including any of insertions, deletions, substitutions, matches, and repetitions as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 33:

Art Unit: 2171

Solomon discloses wherein the repetitions are subtrees of at least the first tree [Figs 4a, 4b]

Claim 34:

Solomon discloses the elements of claims 30-32 as noted above.

Solomon fails to disclose wherein the edit sequence includes at least two repetitions, the at least two repetitions based on at least one subtree of the first tree, and the at least two repetitions appears in the second tree, and the at least two repetitions include at least a first subtree and a second subtree, and the first subtree has at least one difference from the second subtree.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the edit sequence includes at least two repetitions, the at least two repetitions based on at least one subtree of the first tree, and the at least two repetitions appears in the second tree, and the at least two repetitions include at least a first subtree and a second subtree, and the first subtree has at least one difference from the second subtree as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 35:

Solomon discloses the elements of claims 30-32 and 34 as noted above.

Solomon fails to disclose wherein each of the at least two repetitions is obtainable from the at least one subtree of the first tree by some sequence of one or more insertions, deletions, substitutions and matches.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein each of the at least two repetitions is obtainable from the at least one subtree of the first tree by some sequence of one or more insertions, deletions, substitutions and matches as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 50:

Solomon discloses the elements of claim 32 as noted above.

Solomon fails to disclose wherein the first subset of data includes nodes in the first tree that are within a first neighborhood of any of the selected level nodes of the traversed levels of the first tree, the selected level nodes of the traversed levels of the first tree being on the first path from the root of the first tree to the selected data, and the second subset of data includes nodes in the second tree that are within a second neighborhood of children nodes of the best corresponding node selected at a previous level in the second tree.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

Art Unit: 2171

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the first subset of data includes nodes in the first tree that are within a first neighborhood of any of the selected level nodes of the traversed levels of the first tree, the selected level nodes of the traversed levels of the first tree being on the first path from the root of the first tree to the selected data, and the second subset of data includes nodes in the second tree that are within a second neighborhood of children nodes of the best corresponding node selected at a previous level in the second tree as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 51:

Solomon discloses the elements of claims 30-32 and 50 as noted above.

Solomon fails to disclose wherein the first neighborhood of any selected level node includes a first plurality of close nodes according to a first distance measure, and the second neighborhood of a child node includes a second plurality of close nodes according to a second distance measure.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the first neighborhood of any selected level node includes a first plurality of close nodes according to a first distance measure, and the

Art Unit: 2171

second neighborhood of a child node includes a second plurality of close nodes according to a second distance measure as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 52:

Solomon discloses the elements of claims 30-32, 50 and 51 as noted above.

Solomon fails to disclose wherein the first distance measure between any selected level node and another node is at least partly determined a first number of tree edges between any selected level node and another node the second distance measure between the child node and another node is at least partly determined a second number of tree edges between the child node and another node.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the first distance measure between any selected level node and another node is at least partly determined a first number of tree edges between any selected level node and another node the second distance measure between the child node and another node is at least partly determined a second number of tree edges between the child node and another node as taught by Cormen.



The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claim 53:

Solomon discloses the elements of claims 30-32, 50 and 51 as noted above.

Solomon fails to disclose wherein the first distance measure between any selected level node and another node is at least partly determined a first number of tree levels between any selected level node and another node the second distance measure between the child node and another node is at least partly determined a second number of tree levels between the child node and another node.

Cormen discloses the process of augmenting a basic data structure such as order-statistic trees, can be broken into four steps to support additional functionality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein the first distance measure between any selected level node and another node is at least partly determined a first number of tree levels between any selected level node and another node the second distance measure between the child node and another node is at least partly determined a second number of tree levels between the child node and another node as taught by Cormen.

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of determining the cost of reconfiguring a secondary processor by matching trees against each other to determine a minimum edit cost relationship [abstract].

Claims 25 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solomon in view of US Pat No 6,119,124 issued to Broder et al (hereafter Broder).

Claims 25 and 55:

Solomon discloses the elements of claim 1 as noted above.

Solomon fails to disclose wherein one or more of the first set of data and the second set of data is represented at least partly by a set of linearized tokens.

Broder discloses wherein one or more of the first set of data and the second set of data is represented at least partly by a set of linearized tokens [Fig 2]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Solomon to include wherein one or more of the first set of data and the second set of data is represented at least partly by a set of linearized tokens [Fig 2].

The ordinarily skilled artisan would have been motivated to modify Solomon per the above for the purpose of rendering a document [Fig 2]

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Pat No 6,260,042 issued to Curbera et al discloses a tree editing distance algorithm in terms of a cost function.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

Application/Control Number: 09/997,208  
Art Unit: 2171

Page 26

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Patent related correspondence can be forwarded via the following FAX number (703) 872-9306

Etienne LeRoux

April 29, 2004

A handwritten signature in black ink, appearing to read 'Etienne LeRoux', is written over the printed name and date.